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ABSTRACT

This study examined students at two different age levels to determine if those forced into having valid expectations tended to exhibit increased motivation and, by extention, improved performance. Motivation was determined by measuring both student performance and the time spent on the performance task. Eighty students from two grade levels (six and ten) took part in the experiment. Materials used consisted of a booklet of line-drawing problems. Predicted differences in performance for subjects in the two conditions failed to materialize. While the data from this study tended to be somewhat nonsupportive, certain results seemed to offer sufficient incentive to prompt modifications in the instruments and the sample population for future investigation. (Author/PC)

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The Motivational Component Of Stated Expectancies In Children At Two Developmental Levels

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Numerous authors have discussed the motivational properties of stated expectancies (Feather, 1963; Locke, 1966; Crandall, 1969; and Battle, 1965). Of particular interest in this body of research have been the conclusions that high expectancies lead to relatively high performance (Feather, 1963 and Tyler, 1958) and that the act of stating a performance expectancy tends to enhance subsequent performance (Zajonc and Brickman, 1969). Yet it must be continually borne in mind that the bulk of this literature has dealt with only college-age subjects. The researcher interested in the school-age child must, as a consequence, continually evaluate the generalizability of the aforementioned results.

One primary factor influencing such an attitude must be the hedonistic tendency (i.e., unrealistic overprediction of performance) noted in young children. Such tendencies have been noted by both Bailer (1961) and Marks (1951). Indeed, young children seem to take notice of the relationship between a stated expectancy and a probable outcome, apparently functioning much more on the level of aspirations (Lewin, Demko, Festinger, and Sears, 1944) than expectation. Roseman (1973) has noted such a tendency toward overprediction in subjects at the fifth grade level, providing some indication of a potential floor below which the investigation of any motivational properties of expectancies in young children might prove less than clear.

Recently, Clifford (1973) has added to the literature on the relationship between stated expectancy and motivation by positing that it is the accuracy of an expectation, rather than the simple stating of the expectation, which provides the motivational impetus. She proposes that Validity of Expectation (E_v), defined as the degree of correspondence between a stated expectancy and previous relevant performance, and Predictive Validity of Expectation (E_p), defined as the degree of correspondence between a stated expectancy and subsequent relevant performance, are both necessary for motivation to be operative, and that both are a monotonic function of development.

The present study attempted an investigation of the latter of Clifford's concepts. Specifically, it examined students at two separate age levels to determine if those forced into having valid expectations did, indeed, tend to have increased motivation and, by extension, improved performance. Motivation was determined in this study by measuring both student performance and the time spent on the performance task. It was assumed that those subjects in a valid expectation condition would have superior scores on both of these variables, with this effect being more pronounced for the group of older subjects who, it might be assumed, were less influenced by hedonistic aspirations than by realistic expectations. Affective measures were also taken, on the assumption that if any motivational properties attached to the valid expectation condition, they would be reflected in positive affect toward the task. In addition, the manipulation used to ensure invalid expectations was such that any motivational properties the assumed dissonance effect might be presumed to produce (Aaronson and Carlsmith, 1962) would tend to cancel out, thus heightening the effects of the valid condition. Finally, sex differences were investigated. Previous research indicated conflicting trends in this area. Frank (1936), Crandall (1969) and Bardwell (1973) found that female subjects tended to be lower, and closer to their actual performance (whether due to underestimation or to more modest overestimation) than their male counterparts. Marks (1951), Battle (1965), Clifford (1973) and Roseman (1973), however, found no such pattern. In light of this contradiction, no specific hypothesis regarding sex differences was made.

Materials

The materials used in the study consisted of a booklet of line drawing problems (see Appendix A). In the booklet were ten problems to each page, each problem consisting of three lines drawn to portray a contorted geometric figure. It was not immediately apparent whether the actual length of the lines comprising each figure (the criteria ostensibly being tested) was different or not. In

point of fact, the first, seventh, and eighth pages of the booklet did contain problems in which one member of each triplet was demonstrably longer than the others. Pages two through six, however, consisted of problems in which each of the lines making up each of the series of triplets was of the same length. The ninth page was a brief evaluation form which asked students to rate the task on the following three continua:

1) Very easy - Very difficult

2) Very boring - Very interesting

3) Luck - Skill

Subjects

Eighty students (forty boys and forty girls) from two grade levels (six and ten) took part in the experiment. The students were obtained from a rural consolidated school system near the University of Iowa.

Treatment

Subjects were tested in groups of four (two males and two females). Each was given a copy of the booklet containing the line drawing problems. The experimentor explained that they would be working at a task involving perceptual judgment, that for each of the problems on the page the student was to mark the member which contained the longest actual line with a large "X," that pages would be worked and corrected singly, that there would be a time limit in the vicinity of 1.5 - 2 minutes per page "to prevent any one group from getting a large time advantage," and that it was imperative to the success of the experiment that there be no comparisons of papers or results. Subjects were then allowed to work a sample page of soluble problems. After correcting this page for each subject, the experimentor announced that the following page was somewhat more difficult, but urged them to do their best. The problems on this page were, in fact, insoluble, and each subject was given the ficticious feedback

that he had earned four points out of ten on the page. For pages three through six, the experimentor announced after all subjects had received feedback, the subjects were asked to look at a single page, guess the number of items they felt they would answer correctly, work the problems, and then raise their hand so that the page could be corrected before they moved on to repeat the process. Unknown to the subjects, however, all four of these pages contained only insoluble problems. For subjects assigned to a valid feedback condition, the experimentor gave bogus feedback such that the subject's guesses seemed, respectively, one point above, one point below, directly on, and directly on his "actual" performance. Subjects in the invalid feedback condition were given the impression that their guesses were, respectively, three points above, four below, four above, and three below their "actual" performance.

For pages seven and eight, the experimentor advised the subjects that certain new procedures would be implemented. Specifically, there would be no need to guess a score for the pages, the pages would be worked one after the other without any stopping for correction, and the time limit would be relaxed so they could take as much time as they wanted to to do their very best. After all subjects were finished, they were told, they would be asked to answer three brief questions and then allowed to look at answer keys for the final two pages of the booklet and correct their own papers. The experimentor kept surreptitious track of the time spent by each of the four, read the brief questionnaire noted earlier, handed out and collected answer keys and, after subjects had been cautioned about discussing the task with their friends, dismissed the group.

Results

Multivariate analysis of variance revealed a significant Grade effect, $F(1,72) = 4.358$; $p < .05$ within the data. Subsequent univariate tests indicated significant differences between sixth and tenth graders on performance for pages seven and eight ($\bar{X} = 7.9$ vs $\bar{X} = 9.9$; $p < .05$), on the amount of time taken to

work those two pages ($\bar{X}$ = 112.2 seconds vs $\bar{X}$ = 178.3 seconds; $p < .001$), and on the perceived quality of interest of the task ($\bar{X}$ = 5.22 vs $\bar{X}$ = 4.24; $p < .05$). (See Table 1.)

A Treatment effect, $F(1,72) = 3.386$; $p < .01$ was also noted. Univariate F tests indicated the mean time spent working pages seven and eight in the valid feedback condition (175.5 seconds) to be significantly greater than that spent by subjects in the invalid feedback condition (117.7 seconds) at the .001 level. (See Table 2.)

A simple Sex Effect, $F(1,72) = 3.307$; $p < .01$ was also indicated. Subsequent analysis revealed that female subjects, regardless of treatment or grade, stated lower total expectancies on pages three through six than did male subjects ($\bar{X}$ = 16.8 vs $\bar{X}$ = 20.3; $p < .001$). (See Table 3.)

Finally, a Grade x Treatment interaction was found in the data, $F(1,72) = 2.431$; $p < .05$. Univariate tests revealed an ordinal interaction for the variable of time spent on pages seven and eight (Valid 6th $\bar{x}$ = 122.45, Invalid 6th $\bar{X}$ = 102.00, Valid 10th $\bar{x}$ = 228.15, Invalid 10th $\bar{X}$ = 133.50; $p < .005$)

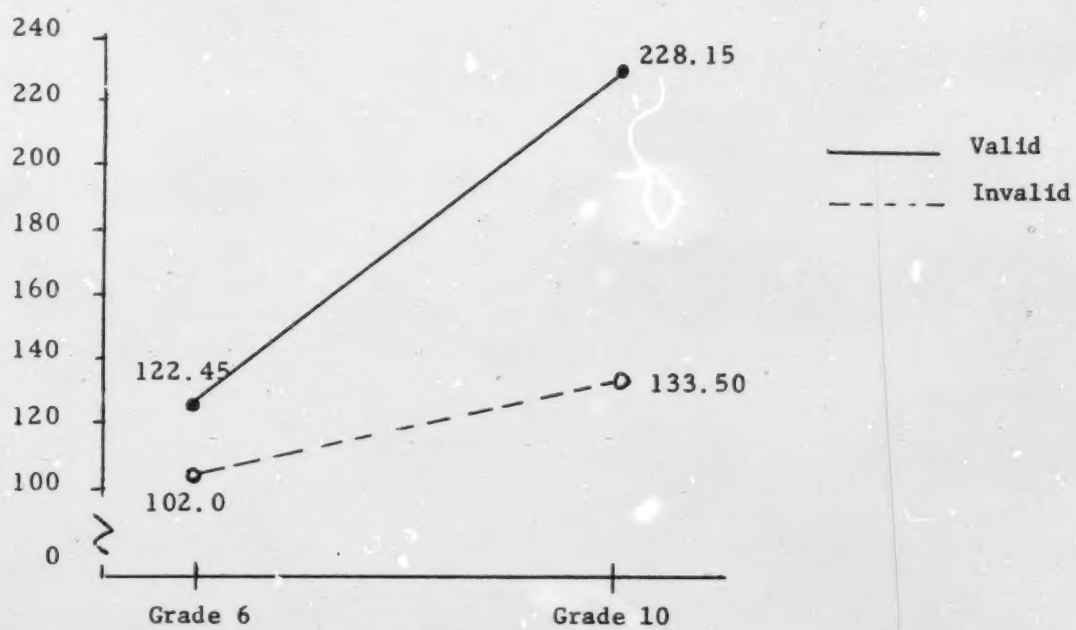

Figure 1

Time in seconds spend by subjects on pages 7 and 8.

and a disordinal interaction for the second question of the questionnaire which asked subjects to rank the task on a continuum from very boring to very interesting, it being observed that Invalid 6th graders found the task to be far more interesting than their Valid classmates, while the reverse was true for 10th graders ($p < .02$) (see Table 4).

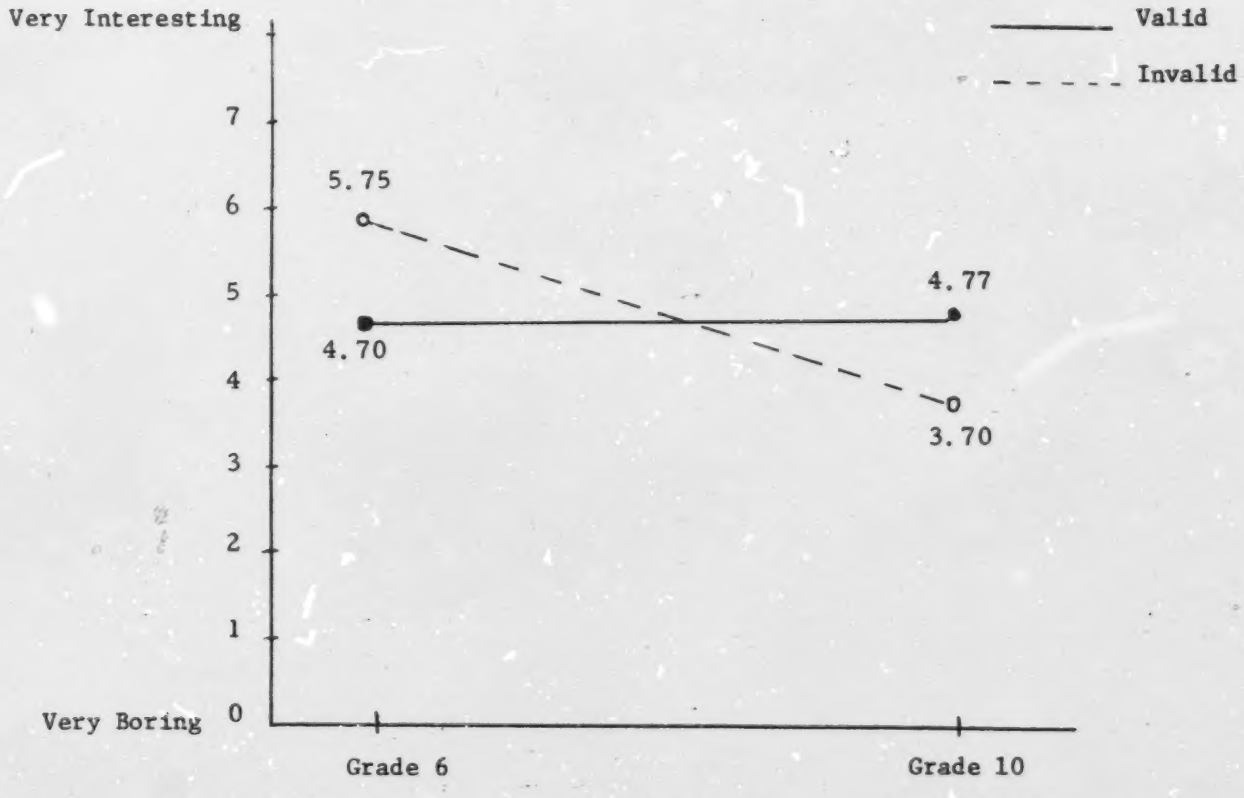

Figure 2

Rated interest of the experimental task

Analyses for Sex x Grade interactions, Treatment x Sex interactions, and Grade x Treatment x Sex interactions revealed no significant difference.

Discussion and Conclusions

First, it must be acknowledged that the predicted difference in performance for subjects in the two conditions failed to materialize. This may, in fact, stem from the sheer difficulty of the task for the six grade subjects (X performance = 7.8; chance performance = 7.0) which could conceivably have canceled out any performance increases resulting from increased motivation. In this regard, it is doubly interesting to note the time spent on the final two pages of the task. While no performance differences were apparent, the valid condition did produce a pronouncedly greater involvement at both grade levels, this difference being particularly extreme at the tenth grade level. This finding would appear to add some support to the observation made by Crandall (1969) that expectancies will predict persistance at intellectual tasks.

Second, although not specifically predicted, the strong sex difference in relation to stated expectancies does seem to offer support to the Frank (1936), Crandall (1969), and Bardwell (1973) results indicating the actual or relative underestimation of expectancies on the part of female subjects.

Third, and finally, the predictions of differences in the various affective measures taken were only partially supported, and then in a somewhat curious fashion. Specifically, it is puzzling to observe that Invalid 6th graders tended to rate the task as more interesting than their Valid contemporaries, while the opposite trend was obtained for 10th graders. No explanation for this phenomenon is immediately apparent.

In summary, while the data from this study tended to be somewhat non-supportive, certain results seem to offer sufficient incentive to prompt modifications in the instruments and the sample population in future work.

Table 1

Performance of 6th and 10th grade pupils on pages 7-8

	$\bar{X}$	df	MS	F	p
Grade 6	7.8	1,72	88.2	4.36	<.04
Grade 10	9.9				

Working time of 6th and 10th grade pupils on pages 7-8

	$\bar{X}$	df	MS	F	p
Grade 6	112.2	1,72	9411.8	22.3	<.001
Grade 10	178.3				

Rated interest of task as indicated by 6th and 10th grade pupils on an 8-point scale

	$\bar{X}$	df	MS	F	p
Grade 6	5.22	1,72	1950.3	5.156	<.025
Grade 10	4.24				

Table 2

Time spent by students in valid and invalid conditions on pages 7-8

	$\bar{X}$	df	MS	F	p
Valid	175.0	1,72	66239.4	15.74	.001
Invalid	117.7				

Table 3

Expectations stated by male and female subjects on pages 3-6

	$\bar{X}$	df	MS	F	p
Male	20.3	1,72	288.8	11.79	<.001
Female	16.8				

Table 4

Time spent by valid and invalid 6th and 10th graders working pages 7-8

	$\bar{X}$	df	MS	F	p
Valid 6	122.45				
Invalid 6	102.00	1,72	27527.8	6.54	<.02
Valid 10	228.15				
Invalid 10	133.50				

Rated interest of task as indicated by 6th and 10th graders on an 8-point scale

	$\bar{X}$	df	MS	F	p
Valid 6	4.7				
Invalid 6	5.75	1,72	2257.8	5.968	<.02
Valid 10	4.77				
Invalid 10	3.70				

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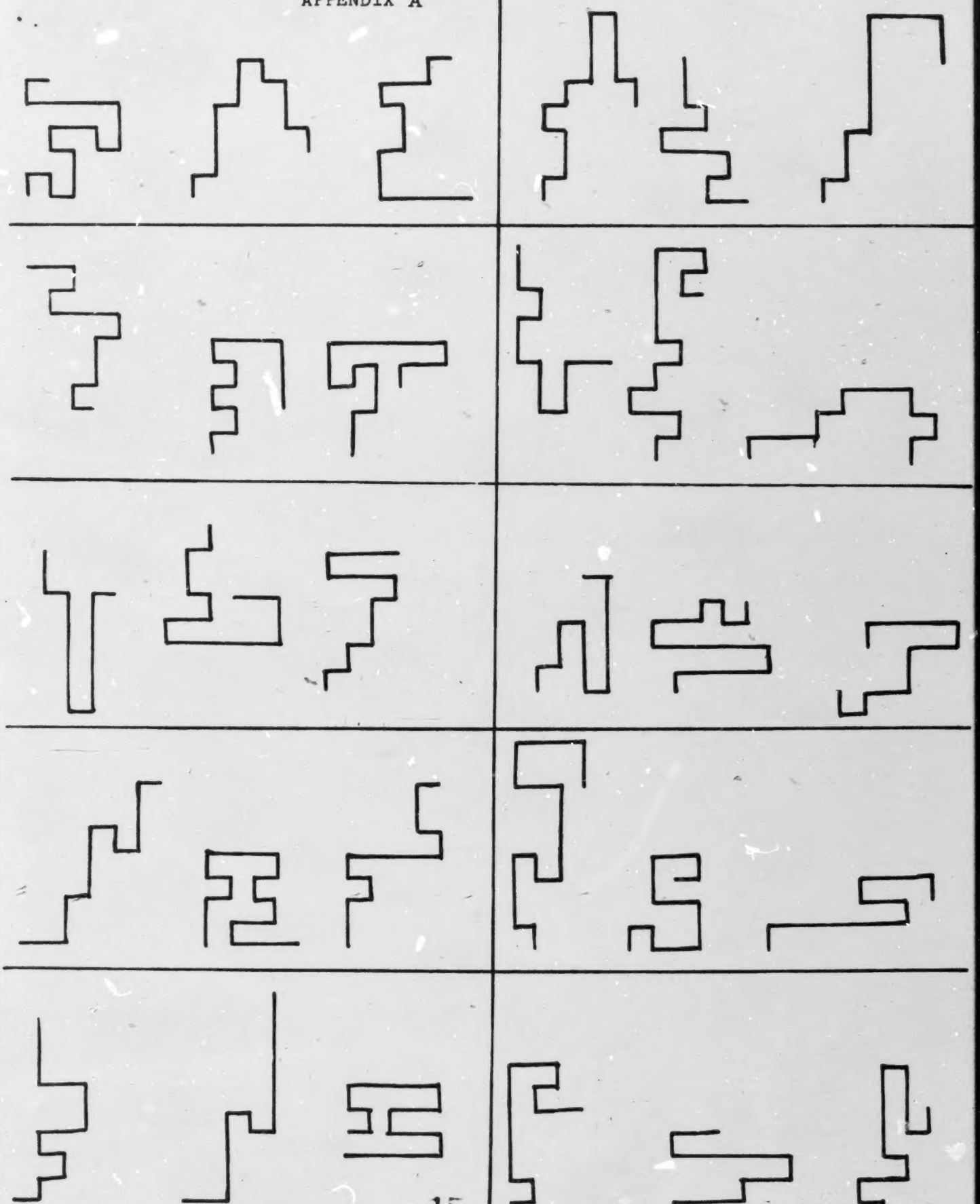
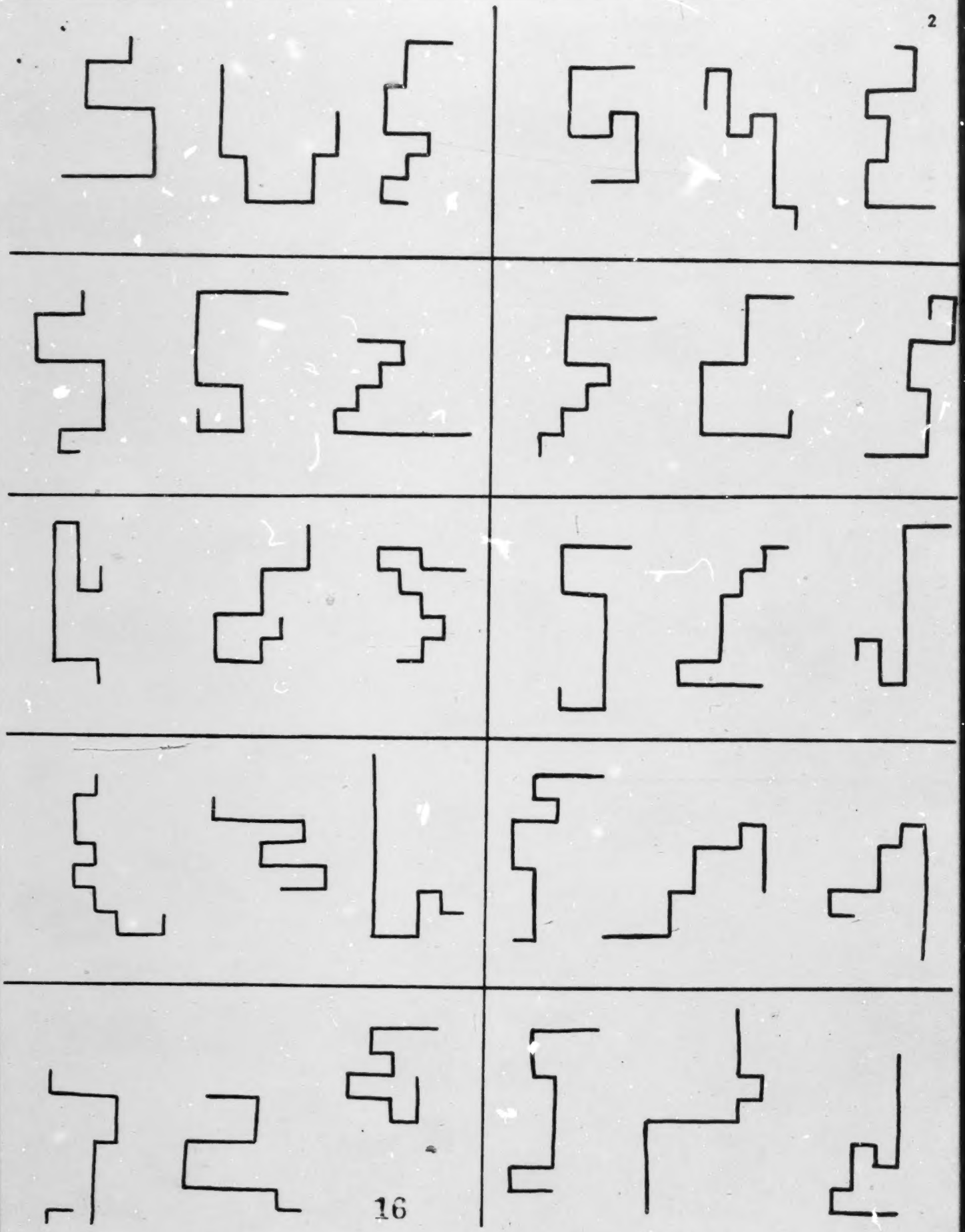
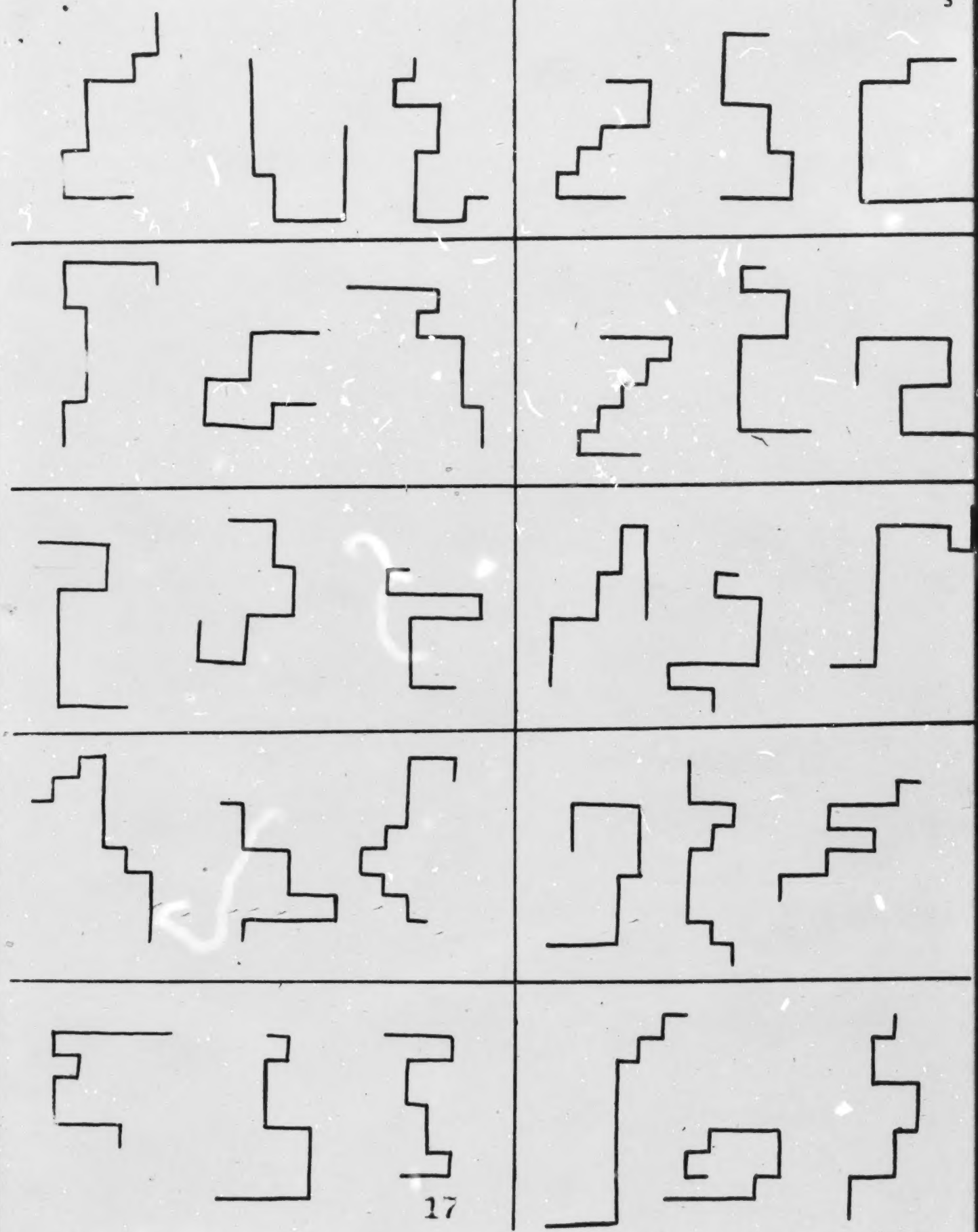
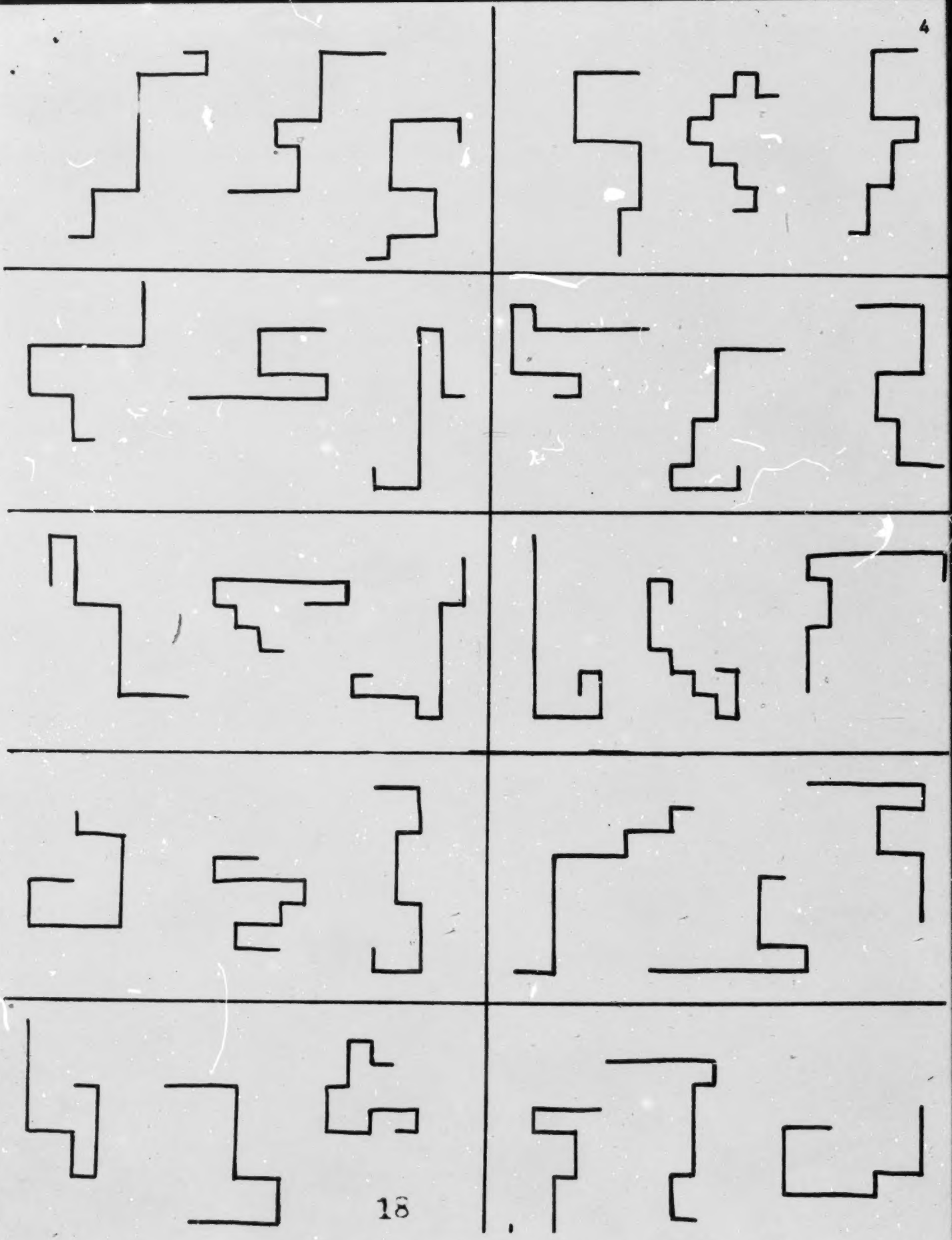
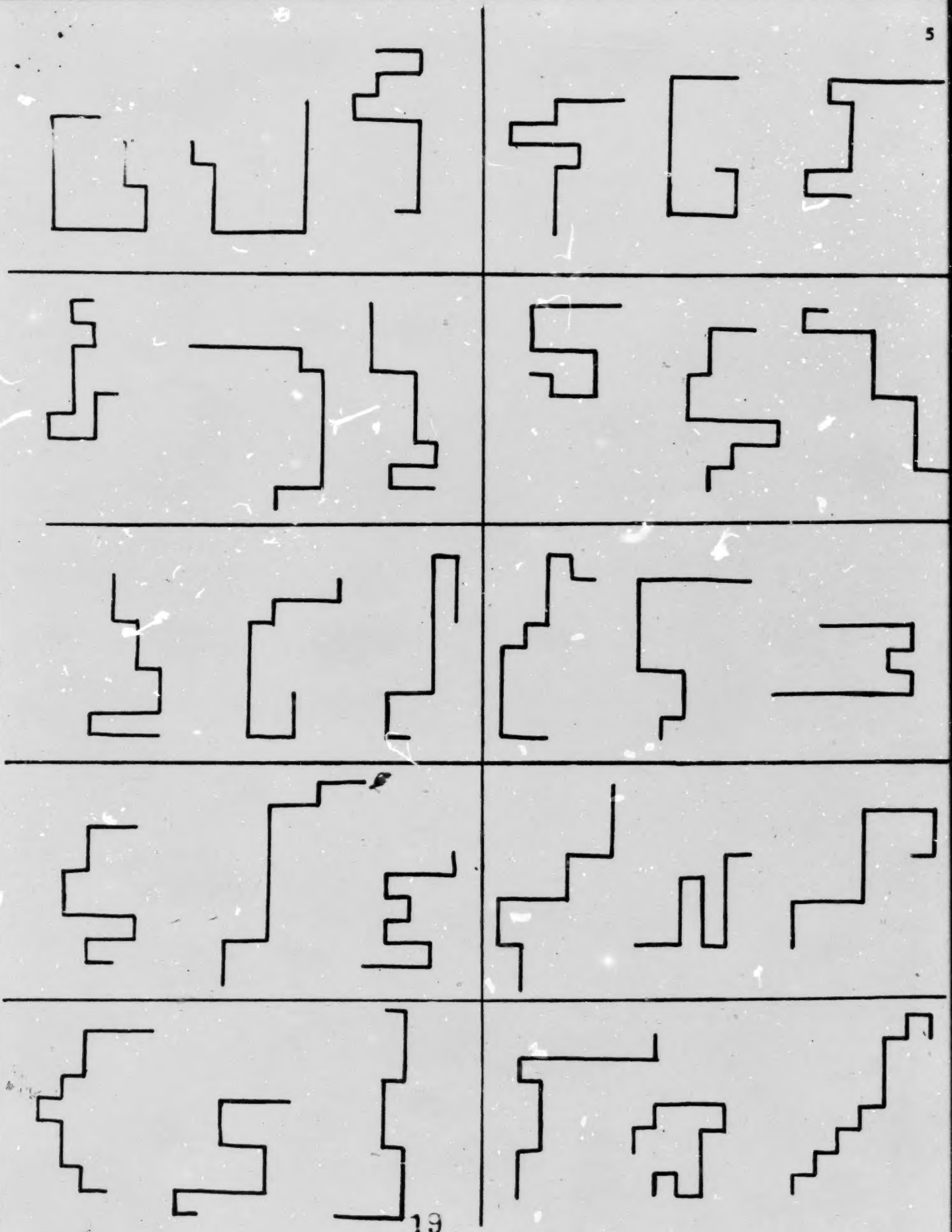
APPENDIX A

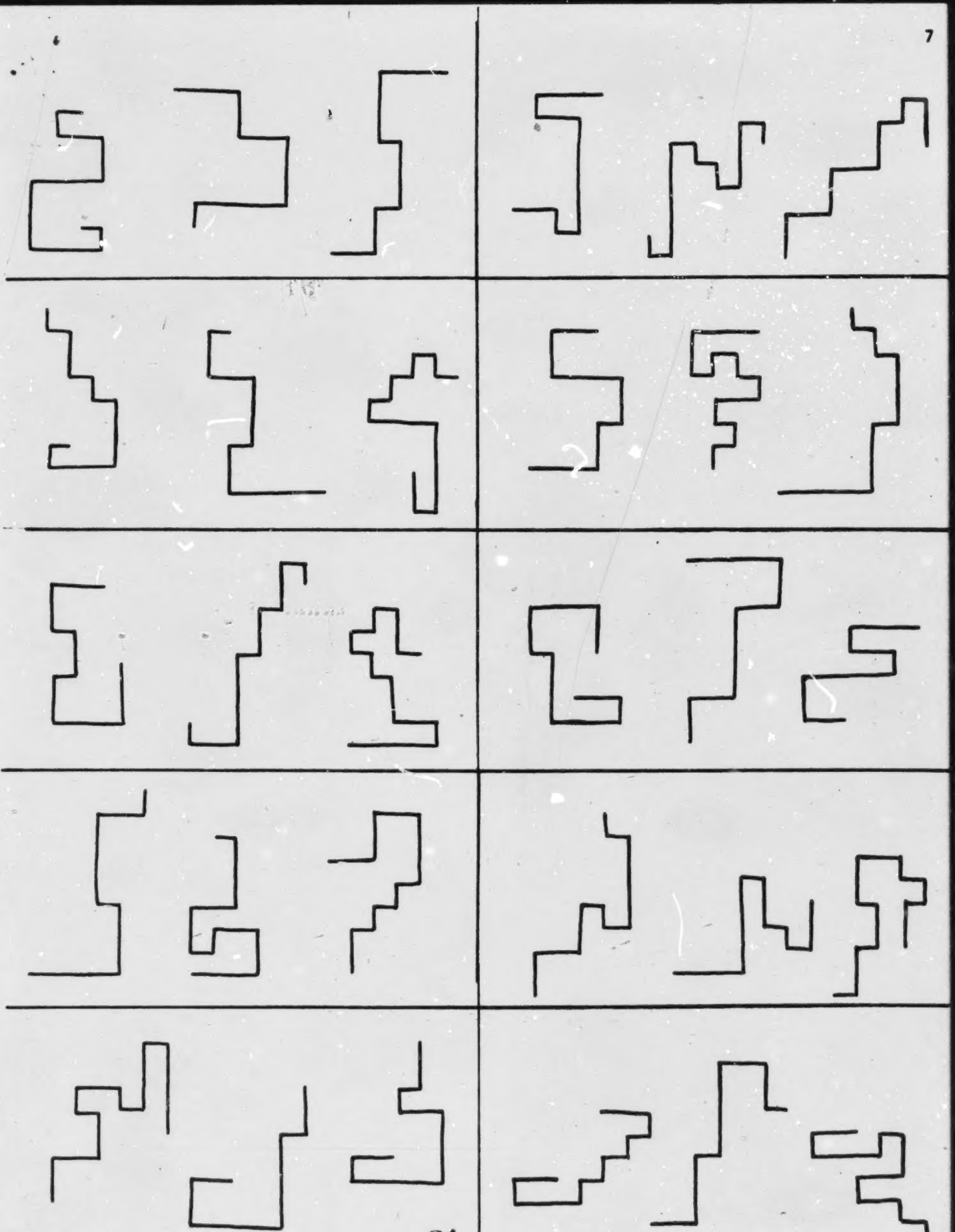


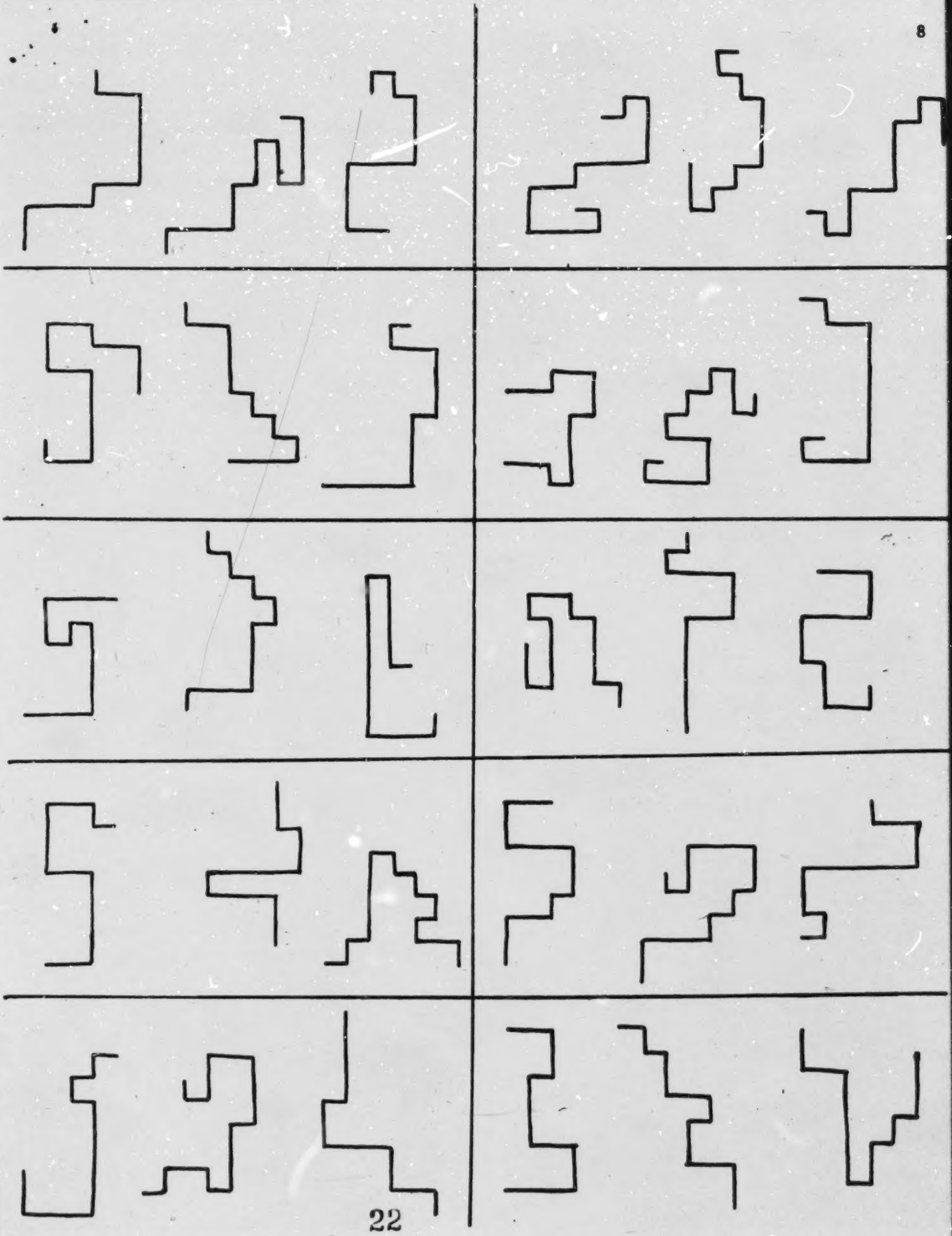








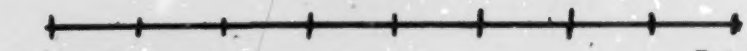




NAME _____ SCHOOL _____ GRADE _____

SEX ☐ MALE
☐ FEMALE

1.



Extremely Difficult — Extremely Easy

2.

Very Boring — Very Interesting

3.

A Matter of Pure Luck — A Measure of Skill